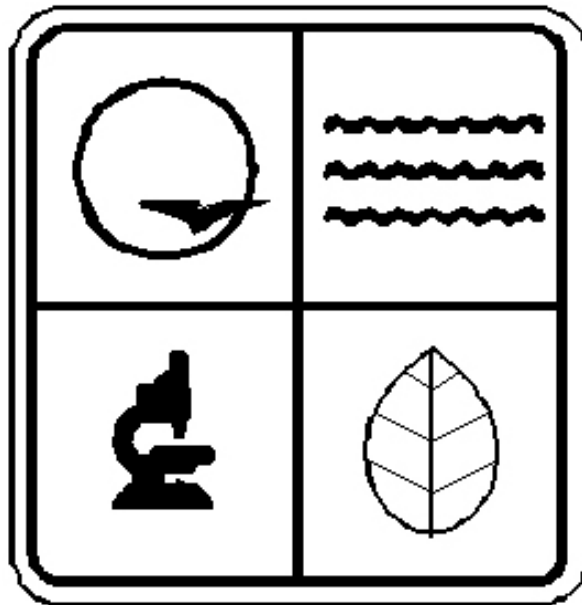


Squaw Creek Baseline

EDM Calibration Baseline
Holt County, Missouri



Established by
Land Survey Program
Missouri Department of Natural
Resources
And
Missouri Department of Highway &
Transportation

1987

SQUAW CREEK EDM CALIBRATION BASELINE

The baseline is located along U.S. Highway 159 near the Squaw Creek National Wildlife Refuge in Holt County, Missouri. The baseline runs parallel to U.S. 159 approximately 28 feet North of the highway centerline.

To reach the baseline from the intersection of U.S. Highway 159 and Interstate 29, proceed Westerly along U.S. 159 approximately 6.5 miles to an intersection with a paved county road running south. The 0m station is located approximately 310 meters west of the intersection just off the north shoulder of the highway.

The baseline consists of six points monumented with copperweld rods set in a mass of concrete flush with the ground. The mark is a center-punched hole in the copperweld rod. For calibration purposes, only points two, three, five and six are used. Points one and four need not be occupied or measured to. The 0m station is point two and is 29.1 feet (8.88 meters) north of the highway centerline, 300 meters west of point one (not used), and approximately 310 meters west of the centerline of a paved county road running south. The 150m station is point three and is 29.2 feet (8.91 meters) north of the highway centerline. The 600m station is point five and is 28.4 feet (8.65 meters) north of the highway centerline. Point six is the 1300m station and is located 27.5 feet (8.38 meters) north of the highway centerline. Care should be taken to occupy the correct point for the 150m station as point four which is not used is 50 meters west of the point three, the correct 150m station.

Users of this baseline should exercise caution when moving from point to point as access to the baseline is along a well used two-lane highway. Turning around at any point requires crossing both lanes of traffic.

The baseline station elevations are as follows:

0 meter - 261.41m

150 meter - 261.37m

600 meter - 261.33m

1300 meter - 261.34

Elevation information by MO Highway and Transportation Dept.

Electronic Distance Measuring (EDM) Calibration Baselines in Missouri

The Missouri Department of Natural Resources has established 12 Electronic Distance Measuring (EDM) calibration baselines in Missouri. Despite the fact that modern equipment is highly sophisticated and provides a direct readout of the distance to the nearest hundredth of a foot or millimeter at push of a button, it can also give an erroneous reading. The EDM baseline will allow the operator to verify that the instrument is in calibration and the instrument is being operated properly.

Each EDM baseline consist of 4 monumented stations. The monuments are spaced nominally at 0 meters, 150 meters, 400 meters and 1100 to 1375 meters. Each station will be occupied with the EDM equipment and a measurement made to the 3 other stations. This will give a total of 12 measurements. The results will determine the scale factor and a system constant for the EDM instrument.

The EDM operator should use the same procedures as in every day fieldwork. This will not only confirm that the equipment is in good working order, but will ensure the complete method of collecting data. The measuring system includes not only the instrument but the tripods, tribrachs, prisms, thermometers and barometers/altimeters as well.

WHEN TO CALIBRATE YOUR INSTRUMENT?

- Upon receipt of a new instrument
- Immediately after each servicing
- Anytime the operator feels the instrument is not working properly
- Before and after DNR or other government agency contracts

BEFORE RUNNING THE BASELINE PERFORM THE FOLLOWING

- Check and adjust optical plummets, bulls-eye bubbles and plumbing poles.
- Check thermometers and barometers/altimeters
- Make sure all tripods are rigid and stable
- Clean prisms
- Fully charge all batteries
- Have an EDM Calibration Report form for the baseline you are running.

When filling out the EDM Calibration Report form, fill in all lines that apply and add addition information if needed.

IMPORTANT NOTE

Before each measurement, enter the temperature and station pressure or absolute pressure into the instrument. The barometric pressure given over the radio and at airports has been reduced to sea level. DO NOT ENTER SEA LEVEL PRESSURE INTO THE EDM. One method used to find station pressure or absolute pressure is by elevation. The barometric pressure is reduced 0.1 inches of mercury for every 90 feet of elevation. So, to correct the sea level pressure obtained from the radio or airport, pick an average elevation for your area and divide by 90. Example: if the elevation is 1000 feet, dividing 1000 by 90 equals 11.11. Therefore, subtract 1.11 inches from the sea level pressure to obtain station pressure or absolute pressure.



STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
GEOLOGICAL SURVEY AND RESOURCE ASSESSMENT DIVISION

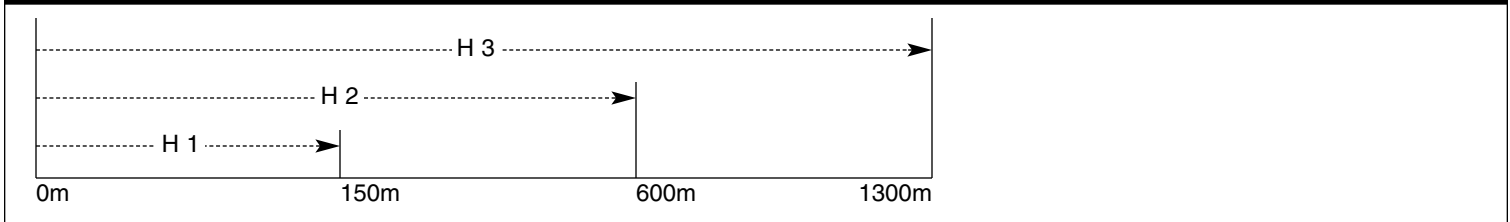
EDM CALIBRATION REPORT – SQUAW CREEK EDM BASELINE (HORIZONTAL)

DATE	COMPANY	REFLECTOR SETUP <input type="checkbox"/> Tripod with tribrach <input type="checkbox"/> Prism pole <input type="checkbox"/> Bipod pole
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INSTRUMENT TYPE AND MODEL

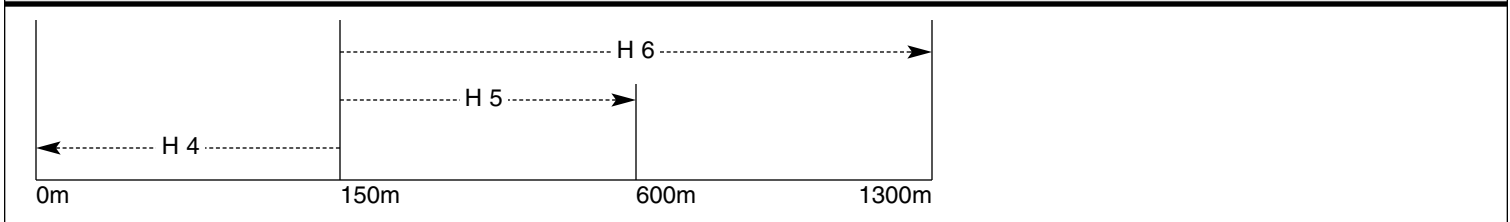
NOTE: ALL DISTANCES SUBMITTED SHALL BE HORIZONTAL.

E.D.M. AT 0m



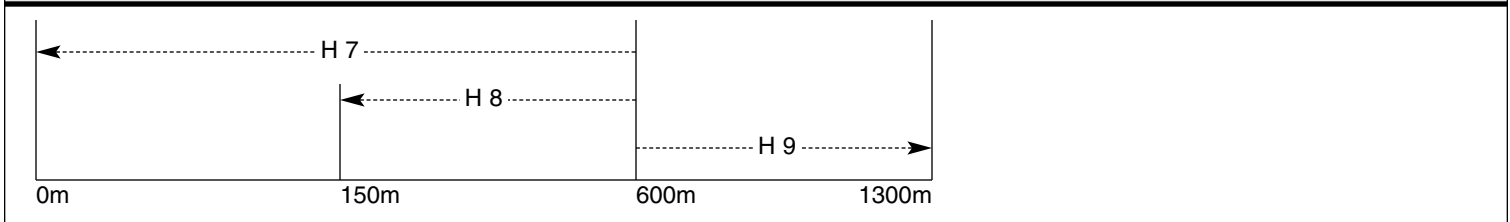
H 1 =	H 2 =	H 3 =	TEMP
H 1 = (150.0252m)	H 2 = (600.0087m)	H 3 = (1299.9878m)	*PRESS

E.D.M. AT 150m



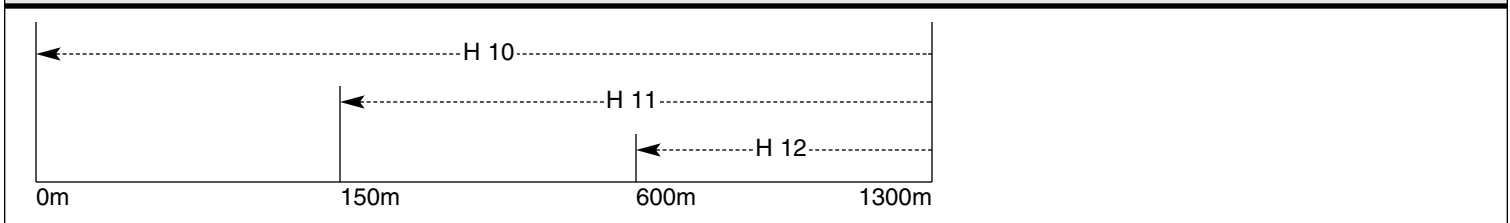
H 4 =	H 5 =	H 6 =	TEMP
H 4 = (150.0252m)	H 5 = (449.9835m)	H 6 = (1149.9626m)	*PRESS

E.D.M. AT 600m



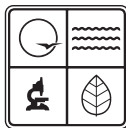
H 7 =	H 8 =	H 9 =	TEMP
H 7 = (600.0087m)	H 8 = (449.9835m)	H 9 = (699.9791m)	*PRESS

E.D.M. AT 1300m



H 10 =	H 11 =	H 12 =	TEMP
H 10 = (1299.9878m)	H 11 = (1149.9626m)	H 12 = (699.9791m)	*PRESS

*Barometric pressure for EDM calibration **must be station pressure**. Do not use barometric pressure reduced to sea level.



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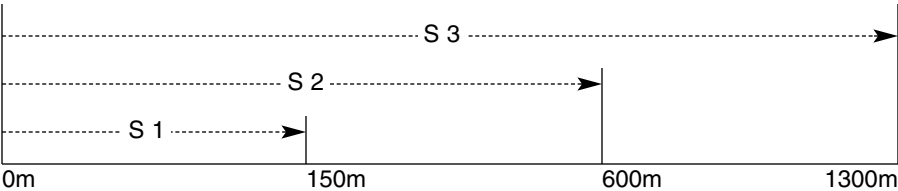
EDM CALIBRATION REPORT – SQUAW CREEK EDM BASELINE (SLOPE)

DATE	COMPANY	REFLECTOR SETUP <input type="checkbox"/> Tripod with tribrach <input type="checkbox"/> Prism pole <input type="checkbox"/> Bipod pole
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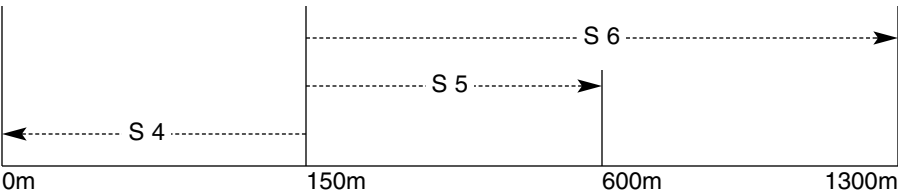
INSTRUMENT TYPE AND MODEL

NOTE: ALL DISTANCES SUBMITTED SHALL BE SLOPE.

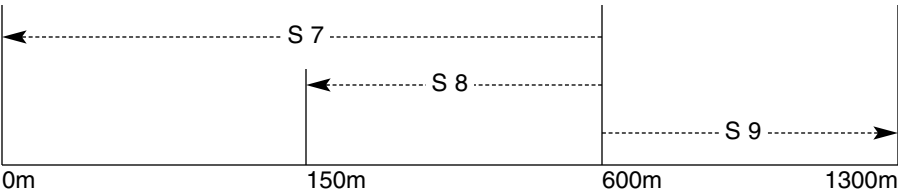
E.D.M. AT 0m

				
HI =	S 1 =	S 2 =	S 3 =	TEMP
	H 0 =	H 0 =	H 0 =	*PRESS

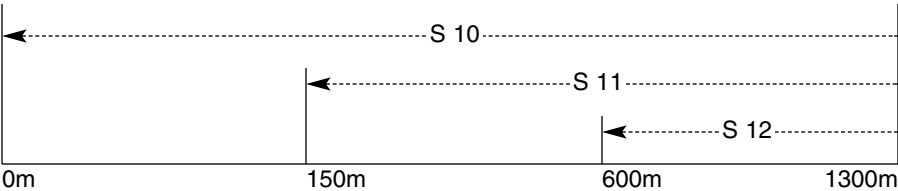
E.D.M. AT 150m

				
S 4 =	HI =	S 5 =	S 6 =	TEMP
H 0 =		H 0 =	H 0 =	*PRESS

E.D.M. AT 600m

				
S 7 =	S 8 =	HI =	S 9 =	TEMP
H 0 =	H 0 =		H 0 =	*PRESS

E.D.M. AT 1300m

				
S 10 =	S 11 =	S 12 =	HI =	TEMP
H 0 =	H 0 =	H 0 =		*PRESS

Heights or delta elevations between monuments. Elevations (Based on Mo. DOT Elevations)

0m = 261.41m 150m = 261.37m 600m = 261.33m 1300m = 261.34m

*Barometric pressure for EDM calibration **must be station pressure**. Do not use barometric pressure reduced to sea level.



NOT TO SCALE

